

## 1 CLAIMS

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3 1. A peptide analogue of GIP (1-42) comprising at  
4 least 15 amino acid residues from the N terminal  
5 end of GIP (1-42) having a least one amino acid  
6 substitution or modification at position 1-3 and  
7 not including Tyr<sup>1</sup> glucitol GIP (1-42).

8

9 2. A peptide analogue as claimed in claim 1 including  
10 modification by fatty acid addition at an epsilon  
11 amino group of at least one lysine residue.

12

13 3. A peptide analogue of biologically active GIP (1-  
14 42) wherein the analogue is Tyr<sup>1</sup> glucitol GIP (1-  
15 42) modified by fatty acid addition at an epsilon  
16 amino group of at least one lysine residue.

17

18 4. A peptide analogue as claimed in any of the  
19 preceding claims wherein the substitution or  
20 modification is chosen from the group comprising  
21 D-amino acid substitutions in 1, 2 and/or 3  
22 positions and/or N terminal glycation, alkylation,  
23 acetylation or acylation.

24

25 5. A peptide analogue as claimed in any of the  
26 preceding claims wherein the amino acid in the 2  
27 or 3 position is substituted by lysine, serine, 4-  
28 amino butyric, Aib, D-alanine, Sarcosine or  
29 Proline.

30

31 6. An analogue as claimed in any of the preceding  
32 claims wherein the N terminus is modified by one

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- 1 of the group of modifications include glycation,  
2 alkylation, acetylation or by the addition of an  
3 isopropyl group.  
4
- 5 7. Use of an analogue as claimed in any of the  
6 preceding claims in the preparation of a  
7 medicament for the treatment of diabetes.  
8
- 9 8. A pharmaceutical composition including an analogue  
10 as claimed in any of the preceding claims.  
11
- 12 9. A pharmaceutical composition as claimed in claim 8.  
13 in admixture with a pharmaceutically acceptable  
14 excipient.  
15
- 16 10. A method of N-terminally modifying GIP or  
17 analogues thereof the method comprising the steps  
18 of synthesising the peptide from the C terminal to  
19 the penultimate N terminal amino acid, adding  
20 tyrosine as a F-moc protected Tyr(tBu)-Wang resin,  
21 deprotecting the N-terminus of the tyrosine and  
22 reacting with modifying agent, allowing the  
23 reaction to proceed to completion, cleaving the  
24 modified tyrosine from the Wang resin and adding  
25 the modified tyrosine to the peptide synthesis  
26 reaction.  
27
- 28 11. A method as claimed in claim 10 wherein the  
29 modifying agent is chosen from the group  
30 comprising glucose, acetic anhydride or  
31 pyroglutamic acid.

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